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1: Skulachev MV, Ivanov PA, Karpova OV, Korpela T, Rodionova NP, Dorokhov YL, Atabekov JG. Related Articles, Links

Internal initiation of translation directed by the 5'-untranslated region of the tobamovirus subgenomic RNA I(2).
Virology. 1999 Oct 10;263(1):139-54.
PMID: 10544089 [PubMed - indexed for MEDLINE]

2: Shivprasad S, Pogue GP, Lewandowski DJ, Hidalgo J, Donson J, Grill LK, Dawson WO. Related Articles, Links

Heterologous sequences greatly affect foreign gene expression in tobacco mosaic virus-based vectors.
Virology. 1999 Mar 15;255(2):312-23.
PMID: 10069957 [PubMed - indexed for MEDLINE]

3: Kim YS, Choi D, Lee MM, Lee SH, Kim WT. Related Articles, Links

Biotic and abiotic stress-related expression of 1-aminocyclopropane-1-carboxylate oxidase gene family in Nicotiana glutinosa L.
Plant Cell Physiol. 1998 Jun;39(6):565-73.
PMID: 9697341 [PubMed - indexed for MEDLINE]

4: Gallie DR, Kobayashi M. Related Articles, Links

The role of the 3'-untranslated region of non-polyadenylated plant viral mRNAs in regulating translational efficiency.
Gene. 1994 May 16;142(2):159-65.
PMID: 8194747 [PubMed - indexed for MEDLINE]

5: Leathers V, Tanguay R, Kobayashi M, Gallie DR. Related Articles, Links

A phylogenetically conserved sequence within viral 3' untranslated RNA pseudoknots regulates translation.
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The 5' untranslated region from pea seedborne mosaic potyvirus RNA as a translational enhancer in pea and tobacco protoplasts.
FEBS Lett. 1992 Jun 1;303(2-3):169-72.
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7: Gallie DR, Feder JN, Schimke RT, Walbot V. Related Articles, Links

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Nucleic Acids Res. 1991 Sep 25;19(18):5031-6.
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8: Isomura Y, Matumoto Y, Murayama A, Chatani M, Inouye N, Ikegami M. Related Articles, Links

Molecular cloning, sequencing and expression in Escherichia coli of the odontoglossum ringspot virus coat protein gene.
J Gen Virol. 1991 Sep;72 (Pt 9):2247-9.
PMID: 1895062 [PubMed - indexed for MEDLINE]

9: Gallie DR, Feder JN, Schimke RT, Walbot V. Related Articles, Links

Post-transcriptional regulation in higher eukaryotes: the role of the reporter gene in controlling expression.
Mol Gen Genet. 1991 Aug;228(1-2):258-64.
PMID: 1886610 [PubMed - indexed for MEDLINE]

10: Gallie DR, Walbot V. Related Articles, Links

RNA pseudoknot domain of tobacco mosaic virus can functionally substitute for a poly(A) tail in plant and animal cells.
Genes Dev. 1990 Jul;4(7):1149-57.
PMID: 1976569 [PubMed - indexed for MEDLINE]

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1: Curr Opin Biotechnol. 1997 Aug 1;8(4):411-6. Related Articles, Links

ELSEVIER

Recombinant proteins from transgenic plants.

Franken E, Teuschel U, Hain R.

Bayer AG Agrochemicals Division, Research/Biotechnology Landwirtschaftszentrum Monheim, 51368, Leverkusen, Germany

Transgenic plants can express a wide variety of foreign genes and offer the opportunity of large-scale protein production in agricultural systems. The recombinant protein can serve both ex situ and in situ purposes. Due to significant progress in plant molecular biology, many different plant species can now be transformed and are even capable of producing very complex proteins such as antibodies or vaccines. Furthermore, recombinant proteins can mediate resistance against microbial pathogens, such as fungi or viruses, or protect transgenic plants from insect pests.

PMID: 9273847 [PubMed - as supplied by publisher]

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1: Mol Biotechnol. 1995 Jun;3(3):225-36.

The potential exploitation of plant viral translational enhancers in biotechnology for increased gene expression.

Turner R, Foster GD.

Botany Department, University of Leicester, UK.

The regulation of gene expression is extremely important for all organisms, not least for viruses that require a maximum rate of production of viral proteins to allow rapid multiplication and spread. Single-stranded positive-sense RNA viruses contain specific nucleotide sequences that can be used to elevate the expression of vital gene products to required high levels. Among plant viruses, translational enhancement has been documented widely, especially over the past few years. Reported candidates include one of the best known and most intensely researched virus, tobacco mosaic virus, members of the potyvirus group, and even a small satellite RNA of tobacco necrosis virus. Enhancement values range from 2-100-fold with different viruses, different reporter genes, and in different systems. Research indicates that an absence of secondary structure alone does not explain translational enhancement and despite attempts to determine the mechanism by which this enhancement occurs very little conclusions can be made as yet. Whatever the mechanism, the presence of these sequences upstream from an open reading frame results in an elevated level of protein production and may feature as important tools for biotechnology in the future.

Publication Types:
- Review
- Review, Tutorial

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